Function

The visco-fan clutch is a service free, hydraulic clutch which operates independent of temperature and free of steps.

When starting engine (cold start), fan will initially start at higher speed until oil has flown back from working chamber (16) into reservoir (15) (approx. 1–3 minutes). Visco-fan clutch will then switch off. Fan speed in disconnected condition depends on engine speed, but a fan speed of approximately 2100/min should not be exceeded.

This condition remains intact as long as engine keeps its normal operating temperature.

If the cooling water temperature increases as the result of a higher load or high outside temperature, the air flowing through the radiator and influencing the bimetallic strip will become warmer. The bimetallic strip (10) will change its shape at increasing heat and will open a valve at approximately 73°C by means of a thrust pin (9), so that the oil can flow from the reservoir (15) to the working chamber (16) to engage fan.

During the sequence, the water temperature is between 90 and 95°C.

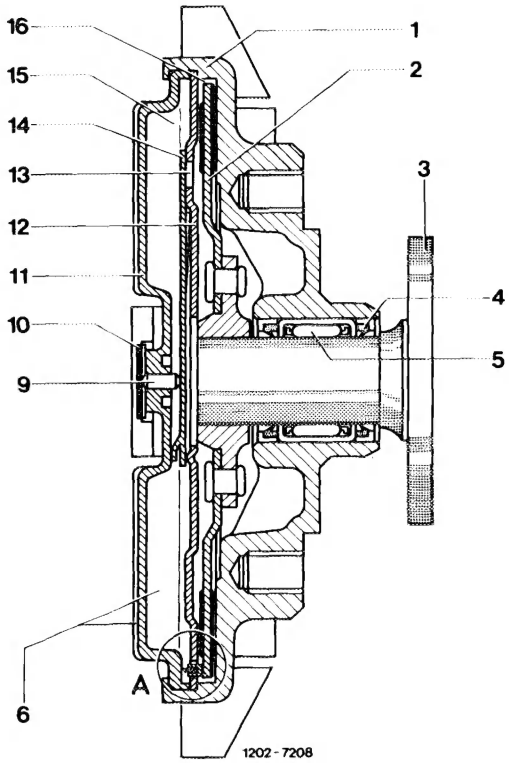
With the clutch engaged, the fan speed in the lower range increases approximately proportionally with the increasing speed, but will not exceed the upper speed range of 3500/min.

Checking cut-in temperature

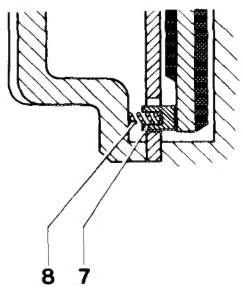
Run engine at 4000–4500/min. When cooling water temperature is at 90–95°C, fan speed should increase by approximately 1000/min which can be checked clearly acoustically.

Repairing

A defective clutch cannot be repaired with normal workshop equipment; it must be replaced by a new clutch.



Detail A



1 Clutch body (secondary part)
2 Drive plate (primary part)
3 Flanged shaft
4 Seal
5 Needle bearing
6 Cooling fins
7 Oil scraper
8 Spring
9 Thrust pin
10 Bimetallic strip
11 Cover with holder
12 Intermediate washer
13 Feed bore
14 Valve lever
15 Reservoir
16 Working chamber

Transport and storage

Temperature controlled visco-fan clutches must be transported and stored in upright position. Clutch may be placed on flange end for short moments (for example during assembly), but never on front end.